

Appl. No.: 10/531,955  
Reply to Office Action of: 12/14/2005

REMARKS

In regard to the declaration, the declaration that was filed was not defective. The inventor merely corrected his address, residence information and citizenship when signing of the declaration. MPEP 602.01 only relates to changing the declaration after it has been signed; not at the time of signing. The examiner is requested to reconsider his requirement for a new declaration. If the examiner continues his requirement, applicant's attorney will attempt to obtain a new declaration from the inventor.

Claims 1-6 and 9-10 were rejected under 35 U.S.C. §102(b) as being anticipated by Sakaguchi et al. (US 6,265,664). Claims 7-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Sakaguchi et al. (US 6,265,664) in view of Goto (US 6,444,910). The examiner is requested to reconsider these rejections.

Claim 1 has been amended above to clarify applicant's claimed invention. In particular, claim 1 claims that the two legs of the contact element are located on respective opposite sides of the electrical conductor, and that each leg is welded to the electrical conductor only on its respective opposite side of the electrical conductor.

Sakaguchi et al. (US 6,265,664) discloses that crimping parts 21 are welded to the braid 13; not to the core 11 (column 4, lines 16-18). The welding of the crimping parts 21 to the braid appear to be around the entire diameter of the braid 13. There is no disclosure or suggestion in Sakaguchi et al. of crimping parts 21 being welded to the braid 13 only on

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respective opposite sides of the braid. Claim 1, on the other hand, claims that each leg is welded to the electrical conductor only on its respective opposite side of the electrical conductor. The features of claim 1 are not disclosed or suggestion in the art or record. Therefore, claim 1 is patentable and should be allowed.

Though dependent claims 2-10 contain their own allowable subject matter, these claims should at least be allowable due to their dependence from allowable claim 1. However, to expedite prosecution at this time, no further comment will be made.

Claims 11-19 have been added above to further claim the features recited therein.

With applicant's invention, during the first phase of the welding process, the current flows through legs of the terminal that are surrounding the insulation, which makes the insulation melt down or break up. During a second phase, a second path is opened for the current (i.e. through the conductor that is to be welded with the aforementioned legs). Here is a big difference between Sakaguchi and the present invention. In Sakaguchi, because of the circular shape, this second path is about the same length as the first path, and moreover being made through a braid (i.e. through numerous interfaces between the individual wires of the braid). The electrical resistance is, therefore, much higher and only small current flows through this second path (notwithstanding the alleged curve fig. 4), especially only small current flows through the interface between the parts to be welded (legs

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with the braid), but unfortunately that is the way a resistance welding usually works (i.e. much of the required heat being created thanks to the high resistance at that interface.)

Sakaguchi does not appear to work properly concerning the welding. From a practical perspective, it appears to be limited to insulation removing followed by crimping. In case there would be some welding of terminal with the braid 13, there will be welding too at the interfaces between the individual wires of the braid, that means a waste of the delivered electrical power. In applicant's invention, due to the flat construction, the second path is much shorter and presents only two interfaces which are the useful ones (i.e. where welding has to occur.) There is no crimping, and no deformation or bending of the leg during the process.

At a first temperature the insulation begins to melt, at a higher one it is blown off, and at a further higher the metal is welded. In Sakaguchi, there is a two conductor system, braid shield 13 and core wire 11 with a second insulation 12 in-between; which has to remain undamaged to keep the conductors 11, 13 separated. For the system to work, this second insulation 12 would have to be made of a temperature resistant insulating material different from the outer insulation material 14, the outer cover 14 having a lower temperature resistance in order to be easily blown off.

In the present application, there is only one main conductor and the purpose is not to weld a shield. Therefore, there is no such a problem.

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In Sakaguchi, due to the circular shape, there is always some difference between the curvatures of electrode and cable, the consequence of which is bad electrical contact and, therefore, poor welding; some amount of heat being created at the wrong place at the interface between the electrode and the legs. Further a different electrode set has to be made for each wire diameter. In the present application, flat construction of the electrodes are used for all flat cables. There is no curvature adjustment difficulty.

In Goto there is no description of any welding of terminal on flat cable. Only welding of conductor strip with bus bars is described. Previous removing of insulation before welding is explicitly described.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issue remain, the examiner is invited to call applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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3/8/06

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